Site description for Swanscombe Skull Site NNR

1 Description

1.1: Location

		Notes
Location	Lies in the centre of Swanscombe south of the railway line between Greenhithe and Swanscombe stations – see Map 1	
County	Kent	
District	Dartford	
Local Planning Authority	Dartford Borough Council	
National Grid Reference	TQ597 743	Centre of the site

1.2: Land tenure

	Area (ha)	Notes
Total Area of NNR	2.08	
Freehold	2.08	Donated to Nature Conservancy (NC), now Natural England (NE) by Associated Portland Cement Manufacturers Ltd, now Blue Circle, on 13 November 1953.
Leasehold	0	
S 35 Agreement	-	
S16 Agreement	-	
Other Agreements	Lease	21 year lease to Swanscombe and Greenhithe Town Council beginning 13th May 1996. Monies are made available in return for agreed management detailed in the management plan.
Legal rights of access	□	Footpath – see Map 2 access
Other rights, covenants, etc	□	
Notes		Copies of the leases and deeds are held at the Natural England office at International House, Dover Place, Ashford, Kent.

1.3: Site status

Designation	Area (ha)	Date	Notes
SAC	-	**Designation:**	
SPA	-	**Designation:**	
Ramsar	-	**Designation:**	
NNR	2.08	**Declaration(s):** No 1: 9th March 1954	
SSSI	3.9	**Notification (1981 Act):** January 1951 (1949 Act) 11th January 1988 (1981 Act)	National Parks and Access to the Countryside Act 1949 Wildlife and Countryside Act 1981
GCR			Swanscombe – Barnfield Pit (Quaternary of the Thames) GCR No. 2052 Barnfield Pit (Pleistocene Vertebrate) GCR No. 1200
Other designations (site):	□		Part of Swanscombe Heritage park
Wider designations:	□		

1.4: Physical features

The Swanscombe Skull Site, near Swanscombe village in North West Kent, is one of the most famous and most important Pleistocene localities in Britain. It is of great importance for stratigraphy, palaeontology and Palaeolithic archaeology. The site is internationally renowned for the discovery, on separate occasions, of three fragments found to be from the same human skull, deemed to be 400,000 years old, the second oldest human remains found in Britain. The site is also of great importance for the rare occurrence of different Stone Age Industries, one above the other – Acheulian above Clactonian. Swanscombe's well preserved and fossil-rich deposits, especially containing mammal and mollusc rich assemblages, combined with the complex sedimentary record, makes this a key reference site not only within Britain, but also throughout Europe.

The Swanscombe Skull

The NNR lies between 23 metres and 35 metres above O.D. to the north of Childs Crescent, Swanscombe, about 1.2 kilometres south of the Thames. It occupies part of the former

Barnfield Pit that was in operation for 60 years, quarrying for sand and gravel, from 1887 until operations terminated in 1947. The quarry excavated into loam and gravel beds that overlay the chalk here. It was during archaeological work at the site in 1935 that amateur archaeologist Alvan T Marston discovered part of a human skull. Nine months later, in 1936, Marston found a second piece, with a third piece being unearthed in 1955 by John J Wymer. Incredibly these were three different pieces of the same skull – The Swanscombe Skull.

The three fragments of the skull were found within an area of about 125 square metres. The occipital bone (the rear wall and base of the skull) was the first piece to be found, with the left parietal bone (the left side wall of the skull) being found second. The third fragment to be found was that of the right parietal bone. Despite excavations being continued for a further five years, no further skull fragments were found. Together the fragments form the back half of the skull of what is believed to belong to a young adult, as the sutures connecting the bones were still open as is seen in young individuals, but the bones are too large and thick to be considered those of a child. Although the skull is colloquially called the "Swanscombe Man", muscle markings and other surface features of the bones suggest the Swanscombe skull may possibly be that of a woman. Below is a photo of the Swanscombe Skull, which is now on permanent display at the Natural History Museum, London, a replica of which can be seen within the Swanscombe Leisure Centre.

Geology of Swanscombe

The underlying geology for the Swanscombe area is Upper Chalk, overlain by Thanet Sand (oldest), Woolwich Beds, Blackheath Beads and London Clay (youngest). These are overlain with more recent Pleistocene deposits of the Boyn Hill/Orsett Heath Formation. At the

Swanscombe Skull site, these sands, gravels and loams are underlain by Thanet Sands. The Pleistocene sediments were deposited by a fore-runner of the present River Thames when it flowed at a level 22 to 33 metres higher than present day. This was during the Pleistocene period, starting about 2 million years ago, during which there were a number of climatic fluctuations ranging from extreme cold (glacial) to temperate (interglacial) conditions, similar, and sometimes perhaps warmer, than the present day. During the early part of the Pleistocene period, the lower Thames had a different course to its present one, and the diversion of the River Thames to its present course was due to the effects of large ice sheets that covered Britain during a major glacial period, the Anglian Glaciation (Marine Isotope Stage 12) that occurred around 450,000 years ago. The Pleistocene sands and gravels at Swanscombe represent a complex record of deposition by the Thames during an interglacial 'warm' period and subsequent cooling phase that occurred about 400,000 years ago.

The Pleistocene sediments found at Swanscombe comprise gravels, sands and loams with a maximum thickness of 14.5 metres, reaching an altitude of 35.5 metres O.D. The deposits are divided into three stages, the lower two (I and II) are predominately river sediments laid down in a temperate climate, whilst the upper (III) are mainly sediments laid down on land in a cool or cold climate. The complete Swanscombe sequence is shown in Figure 1 below.

Stages		**Members (beds)**	**Thickness**
Stage III	IIIe	Higher Loams	Up to 1 m
	IIId	**Upper Gravel**	2 m
	IIIc	**Upper Loam**	1 m
	IIIb	Channel deposits	0 – 2 m
	IIIa	Soliflucted clay	0 – 1 m
Stage II	IIb	**Upper Middle Gravel**	1.5 – 3 m
	IIa	**Lower Middle Gravel**	0.5 – 2 m
Stage I	Id	**Lower Loam**	2 – 2.5 m
	Ic	'Midden' complex	0 – 0.75 m
	Ib	**Lower Gravel**	Up to 5 m
	Ia	Basal gravels	0 – 0.5 m
		Thanet Sand	

Figure 1. The sequence at Swanscombe.

The deposits at Swanscombe show evidence of some of the climatic and environmental changes that took place in the Thames valley about 400,000 years ago. The Lower Gravel consists of 2 – 5 metres of horizontally-bedded sandy gravel, which has yielded land and freshwater snails, animal bones, tusks and teeth, indicating a temperate climate. Above this, the Lower Loam comprises 2 – 2.5 metres of variable muddy sediments, silty sands and silty clays. Fossil snails found within the Lower Loam indicate a temperate climate. Between the Lower Gravel and Lower Loam is an accumulation initially interpreted as a 'midden' – a rubbish dump in a muddy hole into which the hunters threw food and debris and discarded implements – although this interpretation has almost certainly been rejected.

Stage II, found above the Lower Loam, consists of the Lower Middle Gravel and Upper Middle Gravel, the first of which consists of horizontally-bedded sandy gravels with large cobbles at the base, varying in thickness from 0.5 to 2 metres. The flora and fauna indicates a temperate climate. The latter bed within Stage II consists of cross-bedded sands 1.5 – 3 metres thick with occasional lenses of gravel and thin layers of clay. Snail remains were not plentiful but abundant mammalian remains were found, at times in association with stone tools. The occurrence of Norway lemming suggests a period of cooling climate. It was within this bed, about 1 metre above the base of the Upper Middle Gravel, that the three fragments of human skull were found.

The Upper Loam, Stage IIIc, rests on cold climate deposits laid down in river channels (IIIb) cut into the Upper Middle Gravel during a very cold climate. The Upper Loam comprises horizontally-bedded loamy sands about 1 metre thick, with several thin clay layers. This bed has produced no animal remains but pollen indicates a temperate climate. Above this, the Upper Gravel consists of angular pebbles in a tough sandy clay with a thickness of 2 metres. This bed is not a river deposit, but was formed in a cold climate by the down-slope sludging of the surface deposits, saturated with water through seasonal thawing, over a deeply frozen sub-soil. Animal remains are rare, but the lower part has yielded musk-ox.

Acheulian and Clactonian industries

Swanscombe is one of very few British localities to yield two distinct Palaeolithic industries in stratigraphical superposition. These discoveries are associated with a complex succession of gravels, sands and silts, containing abundant faunal remains, and form part of the terrace record of one of Britain's major rivers, the Thames.

At an early stage, researchers noted associations between particular stone tool assemblages and where they were found within the sediments. Stone tools of the Clactonian industry have been found throughout the Lower Gravel (Ib) and Lower Loam (Id) beds, consisting mainly of flint flakes and 'cores' (flint 'nodules' from which the flakes have been removed). Within the Lower Gravel Layer these finds have shown varying degrees of rolling and wear. Swanscombe is one of very few British sites preserving Clactonian material in primary context.

Stage II and III has yielded many hundreds of hand-axes associated with the Acheulian industry. Within the Lower Middle Gravel (IIa) a rich industry of pointed Acheulian hand-axes and flakes are present, all of which are slightly rolled. Scattered Acheulian implements also occur throughout the Upper Middle Gravel (IIb), being more common in the lower part. It was within this layer that the three skull fragments were found about 1 metre above the base of the Upper Middle Gravel, associated with pointed Acheulian hand-axes.

Distinctions were noted between the shape of the hand-axe assemblages recovered from Stage II and Stage III deposits, with finds from the latter bring of a more ovate form. Towards the bottom of the Upper Loam (IIIc) archaeological material in the form of oval Acheulian hand-axes have been found. The top of this layer has yielded flint-working debris in a sharp condition, together with oval hand-axes which are twisted in section. Archaeological material

has also been recovered from the lower part of the Upper Gravel (IIId), comprising twisted oval hand-axes, probably derived from the upper part of the Upper Loam.

References:

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Conway, B.W. and Waechter, J. De A. 1977. Guidebook for excursion A5. South East England and the Thames Valley. Ed. Shephard-Thorn and Wymer, J.J. INQUA. Congress.

1.5: Climate change

Below is a summary of the projections for climate change taken from the North Kent Plain National Character Area profile (only the projections relevant to this reserve have been listed):

The UKCP09 climate change projections suggest that by 2050 we may see an increase of winter mean temperature of 2.2°C, an increase in summer mean temperature of 2.8°C and a change in precipitation distribution, with a decrease of 19% in summer and increase of 16% in the winter throughout the Southeast (central estimate under a medium emissions scenario, UKCP09). Potential effects include:

- Alteration of woodlands, including change in woodland composition as a result of hotter, drier summers, with competition from invasive species and loss of beech as a result of dieback due to soil moisture stress and wind blow due to increased storminess. Climate change may result in increased pressure from introduced pests and tree diseases.

- Appearance of species and crops adapted to new climatic conditions, with a longer growing season potentially leading to double cropping.

- An increase in flash flooding events.

- Pressure upon the water supply due to summer drought exacerbated by increased demand for abstraction.

Climate change vulnerability assessment:

Feature name	Rainfall	Temperature	Extreme Events	In Combination	Reasoning	Confidence
Sediments of the Thames River Boyn Hill/Orsett Heath terrace	M	L	L	M	Increased winter rainfall and increased summer temperatures may disturb the surface soils, leading to increased exposure of sediments and archaeological layers	M
Neutral grassland with scrub and secondary woodland in some places.	M	L	L	L	Stressed trees more at risk from pests/diseases and increased risk of trees failing and potentially causing disturbance to sediments by rootplate heave.	M
Economic Use	L	L	L	L		H
Community Involvement	L	L	L	L		H
Education	L	L	L	L		H
Research	L	L	L	L		H
Demonstration	L	L	L	L		H
Public Access	M	L	L	L	Increased winter rainfall could increase extent of wooded/scrub area flooded when pond overtops and further reduce public access to this area	H
Estate Assets	L	L	L	L		H

1.6: Biological features

Flora

Not applicable to the special interest of the SSSI (which is entirely geological) but the site support a mixture of grassland and scrub/woodland habitats. The woodland is a mixture of species typical of fairly acid soils and of early woodland colonisation, with birch *Betula pendula*, sallow *Salix*, predominant with other more interesting species such as aspen *Populous temula*, oak *Quercus* and blackthorn *Prunus spinosa* also common.

Fauna

Extensive data is not available but the site is likely to support a range of common woodland edge birds and invertebrates but the urban location will preclude species susceptible to disturbance.

Communities
The site comprises a mixture of three principle habitat types. These are secondary woodland, scrub and grassland. Secondary woodland comprising of Ash *Fraxinus excelsior* – Field maple *Acer campestre* – *Mercurialis perennis* NVC community type W8d is located along the western edge of the NNR. With secondary woodland comprising Sallow *Salix cinerea* – Downy birch *Betula pubescens* – Common reed *Phragmites australis* NVC community type W2a with an Alder *Alnus glutinosa* – *Filipendula ulmaria* sub community found in a small area around the winter wet pond in the northern part of the site. In addition scrub comprising of Hawthorn *Crataegus monogyna* – Ivy *Hedera helix* NVC community type W21 is also found along the western edge of the NNR.

Rough grassland comprising of False oat-grass *Arrhenatherum elatius* NVC community type MG1 is found throughout the main areas of the NNR. With fixed dune grassland comprising Red fescue *Festuca rubra* – Ladys bedstraw *Galium verum* NVC community type SD8 being found in an area towards the south of the site, as well as a very small area in the very north of the NNR.

1.7: Cultural features

Landscape Character
Joint Character Area 113 - North Kent Plain
Lying within the North Kent Plain Character Area, Swanscombe is typical of sites along the estuary having a history of industrial use and now partially surrounded by housing giving it an urban setting. The natural landform both on and in the vicinity of the site has been substantially modified by activities associated with chalk and gravel extraction, which took place throughout much of the late 19th century and the first half of the early 20th century, and the subsequent in-filling in the 1950's and 1960's, creating a complex combination of natural and superimposed man made landform. The main features of the landform on the NNR and its immediate surrounds are as follows:

- Craylands Gorge – aligned north east – south west. This is a steeply sided, manmade gorge created during the backfilling in the 1950's and 1960's.
- Plateau/terrace – this rises and from Alkerden Lane in the south and is a reclaimed tip filled to level similar to unquarried land adjacent to the site. The terrace is bisected by a cutting aligned north west – south east. Near the centre of the plateau, the landform has been levelled to accommodate fenced pitches. The plateau offers panoramic views of the surrounding area including the River Thames.
- Skull site – a network of banks and hollows left undisturbed after archaeological excavations but presently being affected by unauthorised digging to create cycle tracks and jumps as well as problems with tree and scrub encroaching. The area is enclosed by steep banks that rise to the original ground levels at the site boundary.
- Picnic area – partly filled reclaimed quarry.
- Allotment site – natural landform.

Land-Use History and Sociological use

The site is also of interest for its industrial archaeology. Barnfield Pit was originally excavated to provide materials for the Swanscombe Cement Works which was the first works to achieve reliable and fully understood production of Portland Cement. At its peak it was the country's largest producer and exporter of Portland Cement. In the 1950s and 60s the quarry was partly backfilled so creating Craylands Gorge. A tramway ran along the bottom of the gorge connecting Western Cross Quarry (later part of Eastern Quarry) to the south with the cement works further north. The tracks of the tramway have been long removed, with only the tunnels and gorge indicating the line of the structure but industrial archaeology features from the last century survive in the form of a cast iron footbridge and pipes, some of which may still be in use for de-watering. Although individually the industrial features and landforms are likely to have only local value, as a group they can be considered to be of high value as a remainder of the historically important and quickly vanishing industrial landscape of Swanscombe.

The site has also been used for informal recreational. The NNR forms part of the Swanscombe Heritage Park, which includes the remaining area of SSSI outside the NNR, the Swanscombe Heritage Centre (leisure centre), football fields and open grassland, Craylands Gorge, Alkerden Lane Pit and Nursery school grounds. The Heritage Park is designated Public Open Space, with the majority of the site, including the gorge, used informally as open space and also for pedestrian access. The Heritage Park (excluding the NNR) was designated as a Site of Nature Conservation Interest (now known as a Local Wildlife Site (LWS)) in 1992 by the Kent Wildlife Trust.

The importance of the Park as a cultural, archaeological, education and recreational resource has been recognised at a local and national level, although the use of the Park as a resource in these areas is underused at present. The Swanscombe Heritage Park Action Group (SAG) was established in 2001 and consisted of key stakeholders and landowners concerned with the management of the park. Group members include: Dartford Borough Council, Groundwork Kent and Medway, Friends of Swanscombe Heritage Park Group, KCC Heritage, Kent Wildlife Trust, Land Securities, Natural England, Swanscombe and Greenhithe Town Council. The Group undertook improvements to the site but currently only functions via the Town Council sub-committee.

A small Friends of Swanscombe Heritage Park Group was established in 2004. The Group runs four events throughout the year aimed at raising the profile of the park, encouraging more people to visit, and to recruit more volunteers.

Education

The site has previously been used for educational purposes but is not currently used and limited facilities are available. Groundwork Kent and Medway have produced an information pack for Craylands Gorge and Swanscombe aimed at raising and developing the awareness of the site as an educational resource. However, this pack is now out of date and needs reviewing. In addition the site is used approximately every five years for field trips in

connection with academic conferences. Interpretation and display facilities are available, however upgrading these would improve the education facilities of the site.

Research Use
Major research projects are not planned at present on this site but small-scale investigations and occasional re-clearing of sections are likely to take place in the future. The last section re-opening took place in 2014 by the Quaternary Research Association.

Demonstration
Not currently applicable for the site.

1.8: Access & visitor facilities

Visitor Appeal and Suitability for Access
The Swanscombe skull site and surrounding Heritage Park is a key area of local greenspace within an urban setting. At present the NNR is used for informal recreation, forming part of the Swanscombe Heritage Park. An Audience Development Plan, commission by Swanscombe & Greenhithe Town Council as support for their application for a HLF Heritage Project Grant, identified that the most popular uses for people visiting the Park were walking, using the children's play area and the heritage interest. However, the location of the reserve within an urban environment makes it prone to inappropriate activities such as vandalism, digging to create sandpits and creation of bike tracks and jumps.

The area immediately adjacent to the reserve is earmarked for development as part of the Ebbsfleet Garden City proposals. The reserve sits on the edge of the Eastern Quarry proposed development and the Council have previously announced aspirations to incorporate the reserve in the greenspace provision of the development.

Interpretation
Interpretation regarding the archaeological importance of the site was installed as part of the 'Walk into History' project. Five interpretative panels have been installed that reflect different aspects of interest, including past wildlife, the important archaeology, and the geological sequences. In addition commemorative boulders show the actual location of the Swanscombe Skull finds. All of these interpretative elements suffer vandalism on a regular basis and so are in a dilapidated state. The plaques which explain some of the interpretative structures are missing which means understanding their meaning is challenging for visitors.

Access Provision
The site is adjacent to the Swanscombe Leisure Centre in Craylands Lane, Swanscombe, and is accessed from the Centre's car park.

Accessed by car is via minor roads from the B259 (Stanhope Road) and A226 (London Road).

The nearest railway station is Swanscombe (approximately 1 km away) on the London to Gillingham line, and is served by South Eastern Trains.

The nearest bus stop is at Child's Crescent where Arriva Kent Thameside services run from Sevenoaks to Bluewater and Gravesend to Dartford.

There is a Public Right Of Way (footpath DS8) that runs along the southern boundary of the site. In addition there is a high quality way-marked path installed in 2005 as part of the 'Walk into History' project linking the entrance feature to the NNR.

In 2014 the Swanscombe Skull Site NNR was dedicated by Natural England for access on foot under Section 16 of the CROW Act 2000.

Visitor Facilities

Toilet and refreshment facilities (including facilities for the disabled) are available at the Swanscombe Leisure Centre. The Centre also hosts a small display about the site. There is a short way marked path to the NNR and interpretation panels provide information on the reserve's areas of interest.

2 Evaluation, Formulation of Vision and Site Objectives

2.1 Site analysis

2.1.1: Site Strengths

Geology/archaeology

- One of only 2 sites in the UK to yield unquestionable Lower Palaeolithic human remains.
- One of the richest Palaeolithic sites in the world.
- High geological value – is one of the most famous and most important site in the British Pleistocene.
- Is of great importance for stratigraphy, palaeontology and Palaeolithic archaeology
- One of the richest Pleistocene vertebrate localities in Britain
- One of the richest site attributed to the Hoxnian Interglacial
- Site generally robust.

Tenure

- The whole NNR is owned by Natural England.

Visitor appeal

- For local people it is an important area of green space adjacent to an urban area.

Community involvement

- Forms part of the Swanscombe Heritage Park.
- Local support from the community – a Friends of Group established in 2004, organises family focused events.
- Importance as a cultural, archaeological, educational and recreational resource recognised at a local and regional level.
- Is adjacent to the Ebbsfleet Garden City proposed development.

Public access

- Open public access.
- Access to the site is good, both on foot, road and public transport.
- There is an informative interpretation trail that leads the visitor to the find site.

2.1.2: Site Weaknesses

Geology/archaeology

- Features are not currently exposed.
- Features are potentially subject to damage by vegetation (tree and shrub) cover and encroachment

- Site vulnerable to damage from vandalism, off-road bikes/vehicles.
- If exposed in the future, could be at risk of illegal collecting. Restricted access may be required.
- Lack of wardens to manage/maintain the site.

Interpretation
- Interpretation stones and signs vulnerable to vandalism/theft.

Public Access
- As area around the find site is enclosed with trees and scrub there is a feeling of isolation when visiting the site. Vulnerability in terms of personal security.
- If Ebbsfleet Garden City development goes ahead there could be an increase in visitor pressure and inappropriate activities on the reserve.

2.1.3: External Opportunities

Access and Interpretation
- Improved/increased educational access/visits
- Improved interpretation.
- Potential for linking with other greenspace in the area, including cycle paths, footpaths.
- Improved display in the Swanscombe Centre.

Community involvement
- Greater engagement with local community through Friends of Group.
- Potential for volunteer groups to assist with daily management.

Partnership working
- Potential for partnership working with local and regional geological/archaeological community.
- Partnership working facilitated through Ebbsfleet Garden City.

2.1.4: External Challenges

Geology/archaeology
- Preventing future vandalism, fly tipping.
- Monitoring vegetation growth
- Preventing unauthorised off-road biking/access.
- Addressing wider social issues that have an adverse impact on the condition of the NNR.

Funding
- Securing funding for future planned works.

Community involvement

- Ensuring sufficient support from volunteers/members of the community.

Management

- Ensuring that the site is managed to an appropriate standard by the leaseholder.

2.2: Site management policy

Archaeological and geological interest

The overriding importance of the site is its archaeological and geological interest. Management should seek to maintain the interest features of the site in a favourable condition. Although the archaeological interest lies buried, there is evidence of ongoing deterioration in the quality of environmental indicators, particularly faunal remains, within the surviving deposits, the cause of which may be the removal of overlaying sediments. During the currency of this plan it will be necessary to determine a long term strategy to overcome this problem.

Very little assessment and monitoring of the site has taken place in recent years to determine whether there is any ongoing deterioration due to the past gravel extraction workings. The deterioration envisaged is anticipated to be caused by the movement of rainwater downwards into the site causing a change to the conditions below ground level. Flora and fauna remains and artefacts could be suffering damage. Controlling the growth of trees to reduce damage from tree roots is constructive but a greater degree of protection should be investigated and acted on when priorities allow and finances are available. Two projects have been proposed to investigate this, subject to funding being secured. The first would be to undertake a field survey to map surface distribution of sediments within the NNR and Craylands Gorge, to assess current condition of surface deposits and vulnerability to erosion, root growth, damage by digging and bike-riding. The second project would investigate the condition of the archaeological and geological resource in key horizons (Upper Middle Gravel, Lower Middle Gravel, Lower Loam and Lower Gravel), to assess any deterioration in the condition of the resources. Both these projects would then propose suitable mitigation to prevent further damage, thereby informing future management for the site. Should funding not be available, the site should be protected in the shorter term from digging and from disturbance by roots of trees and shrubs.

Regular management of the site should include vegetation management of the embankments, especially trees and shrubs with deep root systems that will disturb the gravels. Access to the site should be maintained, ensuring paths are mown annually. Site furniture, including commemorative stones and information panels, picnic tables and litter bins should be maintained.

Biological Interest
Conservation of the biological interest of the site is of less importance than that of the archaeological and geological aspects. Nevertheless, the biological interest, within the context of the location of the site adjacent to high density housing and considering the free public access and high use by local residents for recreational purposes, is of local importance. The biological diversity for such a small site is quite high and should be maintained and enhanced.

Public Access
The reserve is used by large numbers of local people for informal recreation. Low key recreation on the reserve will not detract from the archaeological, geological or biological interest of the site and should be permitted. The definition of low key recreation would include walking, dog walking, study of natural history, picnics and similar activities but would exclude horse riding, use of any motor vehicles or cycles, camping, lighting fires or any activity that might damage the archaeological, geological or biological interest of the site.

2.3: Vision

A 50 Year Vision for Swanscombe Skull Site National Nature Reserve
Combined with the rest of the Heritage Park the NNR will be a key local greenspace for the community of Swanscombe and the surrounding towns. Community involvement with the park will engender a spirit of community ownership and a desire to protect and maintain the park for future generations. The site will provide visitors the opportunity to learn about the extraordinary Story of the Swanscombe Man, which evidence suggests may have actually been a young women.

With new and improved visitor facilities within the Heritage Park, the site will be able to provide for a wide range of visiting groups. Educational visits will provide students with the opportunity to learn the Story of the Swanscombe Man in a unique outdoor classroom, whilst an updated Education Pack will allow these visits to fit clearly within the national curriculum.

The wider Heritage Park provides an excellent outdoor venue for recreational use by the public, with picnic and wildlife areas as well as interpretation and education provided in the form of panels and self-guided walks. In addition the site will welcome visits from the geological and archaeologically community for scientific purposes, ensuring that visiting public are kept informed through additional temporary interpretation and information panels whilst scientific work is taking place.

Problems with areas of sensitive geological interest being used for off-road biking have been solved with a purpose built areas constructed not far from the site. This has given local children a safe area to play, whilst preventing further damage to the geology.

The Friends Group, which has an increasing number of volunteers, runs regular family focussed events at the site throughout the year. In addition volunteer wardens lead guided walks at weekends and during the school holidays to educate and inform people about the

importance of the site and its management. The volunteering at the site has expanded to form a core group of 'voluntary wardens' who organise and run regular conservation work party days on the site carrying out management tasks such as scrub clearance and other habitat improvements.

The existing NNR and Heritage Park will be linked with a new 'Northern Park' in the Eastern Quarry development, which will provide footpath links and a new Heritage Centre. This will be an importance area to ensure that visitor pressures are not concentrated on the NNR potentially damaging the site. The Heritage Centre will provide a valuable resource for educational visits as well as being a museum for the many important heritage artefacts found in the area to be homed.

Improved public access to the site will allow more people to visit, and improved security, provided through CCTV and wardens, will create a feeling of public safety.

Survey work looking at the condition of the archaeological and geological resource, including a field survey to map the distribution of sediment, has been carried out, which can inform the methodology used to protect the archaeological and geological heritage. During survey and clearance works at the site new excavations were carried out, which has provided further information and knowledge on the site, evidence of which is displayed in the Heritage Centre.

Swanscombe Skull Site NNR Management Plan

List of Features

1 - Sediments of the Thames River Boyn Hill/Orsett Heath terrace

2 - Neutral grassland with scrub and secondary woodland

3 - Estate assets

4 - Community Involvement

5 - Education

6 - Public Access

Feature Details

Feature 1: Sediments of the Thames River Boyn Hill/Orsett Heath terrace

Sediments of the Thames River Boyn Hill/Orsett Heath terrace of great importance for geology, palaeoanthropology and Palaeolithic archaeology, containing a rich Pleistocene vertebrate fauna.

The site has been found to contain the remains of Pleistocene faunas including 26 mammalian taxa (eg human, macaque, lion, straight-tusked elephant, 2 extinct rhinos, horse, several deer, aurochs and small mammals) and many birds, as well as providing stratigraphic evidence for climate change.

Objective

To maintain the features of archaeological and geological interest on the NNR in favourable condition.

Management Rationale

The principle of conservation for the reserve is to maintain and protect the geological and archaeological interest features in an undisturbed condition that permits access for excavation should renewed research interest arise at the site.

- Trees and large shrubs should be removed from the geological interest features to prevent damage to gravels by roots. Trees and shrubs should be cut to ground level and stumps treated and left in situ. Regrowth of trees and shrubs in these areas and across the site should be prevented.
- Prevent erosion/dumping/extraction/litter.
- Prevent digging and collecting.
- Prevent/reduce and eliminate other damaging human activities.

Important sediments survive close to the surface in parts of the NNR, but the exact extent of survival of sensitive geological and archaeological deposits at the site is not well understood.

- Planned survey work to be undertaken to map the surface distribution of sediments, and to investigate the condition of the archaeological and geological resource. The survey work will identify sensitive areas, which will then be covered with an appropriate protective layer to prevent further deterioration.
- Results from the survey will also be used to inform future management works such as scrub and tree removal.

Attributes

Extent

AF01/1	EXTERNAL FUNDING APPLICATION TO HLF
AI00/1	INTEGRATED SITE ASSESSMENT
RC0+/1	Archaeological, survey
RH01/1	INVESTIGATE CONDITION OF ARCHAEOLOGICAL RESOURCE
RP22/2	MAP SURFACE DISTRIBUTION OF SEDIMENTS

Exposure of feature of interest

AI00/1	INTEGRATED SITE ASSESSMENT
RH01/1	INVESTIGATE CONDITION OF ARCHAEOLOGICAL RESOURCE

Vegetation

AF01/1	EXTERNAL FUNDING APPLICATION TO HLF

AI00/1 INTEGRATED SITE ASSESSMENT

RP22/2 MAP SURFACE DISTRIBUTION OF SEDIMENTS

Damage to exposures

AF01/1 EXTERNAL FUNDING APPLICATION TO HLF

AI00/1 INTEGRATED SITE ASSESSMENT

RP22/2 MAP SURFACE DISTRIBUTION OF SEDIMENTS

Management

Scrub control

AL00/1 RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY

AP20/1 MANAGEMENT PLAN STATUS

MH0+/1 Manage woodland and scrub

Wardening of site

AF01/1 EXTERNAL FUNDING APPLICATION TO HLF

AI30/2 HEALTH AND SAFETY DOCUMENTATION

AL00/1 RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY

AP20/1 MANAGEMENT PLAN STATUS

ME30/1 Control erosion

ME32/1 Control extraction

Feature 2: Neutral grassland with scrub and secondary woodland

Mixture of grassland and scrub/woodland habitats of local interest. However, due to the nature of this site, grassland is the preferred habitat type for areas of geological interest.

Objective

To enhance the biological interest of the site through appropriate management.

Management Rationale

The biological diversity of the site should be maintained and enhanced.

- Grassland should be managed to create a mosaic of short and rough grass.ı
- Paths and edges of paths should be mown annually.
- Scrub present in geologically non-sensitive areas should be maintained by rotational cutting to prevent establishment of secondary woodland and to maintain small glades. Scrub is a valuable habitat for breeding birds and a range of invertebrates. Once scrub reaches a certain age it loses it value for these species.
- In geologically sensitive areas deep-rooted trees and shrubs will be cut and remaining stumps treated and the areas restored to grassland. This will be undertaken in a phased approach.
- Trees and shrubs should not be planted on the reserve.
- The winter wet pond should be maintained and enhanced.

Attributes

Extent

AI00/1 INTEGRATED SITE ASSESSMENT

Management

Grassland management

AL00/1	RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY
AP20/1	MANAGEMENT PLAN STATUS
ME40/1	MOW PATHS
MH12/1	Mowing grassland mosaic

Scrub control

AL00/1	RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY
AP20/1	MANAGEMENT PLAN STATUS
MH14/1	Scrub control

Pond management

AL00/1	RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY
AP20/1	MANAGEMENT PLAN STATUS
MH6+/1	MAINTAIN & ENHANCE WINTER WET POND

Feature 3: Estate assets

Current interpretation regarding the archaeological importance of the site was installed as part of the 'Walk into History' project. There are currently five interpretative panels installed that reflect different aspects of interest, including past wildlife, the important archaeology, and the geological sequences. Two commemorative boulders showing the location of the Swanscombe Skull finds replace the original commemorative stones.

There is a Natural England branded headboard panel at the pedestrian entrance to the reserve from the car park.

Within the site there are steps and picnic benches.

Objective

To maintain estate fabric and reserves' interpretative signs and structures in a good and serviceable condition.

Factors Discussion

Attributes Discussion

Management Rationale

The interpretative materials have suffered vandalism over the years and are currently in a dilapidated state which does not aid visitor appeal of the reserve. One of the proposed HLF project aims is to focus on providing improved interpretation such as new interpretation structures and display boards relating to the three heritage elements, and entrance signage.

The proposed HLF project also mentions improving step access into the site.

Attributes

Estate fabric condition

AI30/1	SAFETY AUDITS AND INSPECTIONS
AI30/2	HEALTH AND SAFETY DOCUMENTATION

Management

Wardening of site

AF01/1	EXTERNAL FUNDING APPLICATION TO HLF
AI30/1	SAFETY AUDITS AND INSPECTIONS
AI30/2	HEALTH AND SAFETY DOCUMENTATION
AL00/1	RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY
AP20/1	MANAGEMENT PLAN STATUS
ME00/1	MANAGE SITE INFRASTRUCTURE
ME04/1	Remove rubbish
MI50/1	NNR SIGNS

Feature 4: Community Involvement

An increase in community interest and involvement in the reserve could help to combat anti-social behaviour on the reserve and assist with habitat management.

Objective

To develop and support partnerships within the local community to facilitate their involvement in the reserve.

Management Rationale

There is currently a Friends of Swanscombe Group which runs events throughout the year aimed at raising the profile of the site and encouraging more people to visit. Increasing the membership of the Group would build capacity for running more events.

Either through the Group or a Warden post, recruitment of additional volunteers to undertake practical conservation management tasks would improve the condition of the reserve.

Attributes

Volunteer numbers

Management

Public engagement

AF01/1	EXTERNAL FUNDING APPLICATION TO HLF
AL00/1	RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY
AP20/1	MANAGEMENT PLAN STATUS
MI00/1	UPDATE WEB-SITE INFORMATION
MI50/2	RESERVE PUBLICATIONS
ML50/1	Liaise, local community/groups

Feature 5: Education

An education pack for Swanscombe NNR and surrounding Heritage Park was produced by Groundwork Kent and Medway, aimed at raising and developing the awareness of the area as an educational resource. This pack is now out of date.

Objective

To develop low-key educational use of the reserve.

To create an up-to-date education pack.

Management Rationale

Reviewing the Education Pack and making it relevant to the current National Curriculum is key to enabling its use as a outdoor classroom.

Attributes

Availability

Management

Update education provision

AF01/1	EXTERNAL FUNDING APPLICATION TO HLF
AL00/1	RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY
AP20/1	MANAGEMENT PLAN STATUS
MI00/1	UPDATE WEB-SITE INFORMATION
MI20/1	UPDATE EDUCTION PACK
MI50/2	RESERVE PUBLICATIONS

Feature 6: Public Access

The reserve currently has good pedestrian access and an access audit undertaken in 2014 did not highlight the need for any additional access provision.

Objective

To encourage low key public access to the reserve that is compatible with the conversation requirements of the site.

To discourage recreational activities likely to damage the site or detract from visitors' enjoyment.

Management Rationale

Open public access to the reserve is currently provided via a network of footpaths which should be maintained in a passable condition and routinely checked for health and safety.

Attributes

Visitor numbers

RH34/1	VISITOR NUMBERS

Management

Public engagement

AF01/1	EXTERNAL FUNDING APPLICATION TO HLF
AL00/1	RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY
AP20/1	MANAGEMENT PLAN STATUS
MI00/1	UPDATE WEB-SITE INFORMATION
MI50/2	RESERVE PUBLICATIONS
MI60/1	NNR EVENTS

Project Appendix

AF01/1	EXTERNAL FUNDING APPLICATION TO HLF

Swanscombe and Greenhithe Town Council are preparing an application for Heritage Lottery Funding. The Heritage Grant would fund a Swanscombe Heritage Park Enhancement project and to-date the proposal includes the land within the NNR boundary. An application form submitted to HLF in 2009 outlined the broad project aims as:

- To improve access to and within the Heritage Park. This will build on the earlier access improvement work undertaken as part of the 'Walk into History' project and will open up access to a wider area of the park.
- To protect the important Palaeolithic archaeology and geology through enabling surveys to take place and covering sensitive areas to prevent further deterioration.
- To enhance the biodiversity value of the site through the implementation of conservation management.
- To increased understanding of the Palaeolithic archaeology and geology, industrial heritage and biodiversity value of the site through interpretation and education activities.
- To address issues of site security and antisocial behaviour through the employment of Park Wardens.

Although the project involves land within the NNR, and despite repeated requests, Natural England have not been given an opportunity to comment on the proposals. It should also be noted that the current lease with the Town Council expires in 2017 and so this issue would need addressing before a project submission could be made to HLF as they cannot grant-aid projects to leaseholders on land which doesn't have a long-term lease.

AI00/1	INTEGRATED SITE ASSESSMENT

Undertake an assessment of the condition of the notified features of the site.

AI30/1	SAFETY AUDITS AND INSPECTIONS

Undertake programme of safety audits and inspections listed below, in accordance with regional and corporate standards. Project report should state where completed inspection data is held.

Site safety inspection - undertake inspections in April and October each year

Tree inspections - undertake tree inspections annually in April

AI30/2	HEALTH AND SAFETY DOCUMENTATION

Prepare/revise all health and safety documentation (including safety statements, guidance for visitors and permit holders and risk assessments) in accordance with regional and organisational timetables. Project report should confirm that revisions have been undertaken or identify shortfalls.

AL00/1	**RENEW LEASE ARRANGEMENTS FOR MANAGEMENT OF RESERVE BY THIRD PARTY**

Reserve management lease with Swanscombe and Greenhithe Town Council expires in 2017.

AP20/1	**MANAGEMENT PLAN STATUS**

Management Plan to be reviewed in 2019/20.

ME00/1	**MANAGE SITE INFRASTRUCTURE**

Regular inspection of signage, interpretation panels and footpaths.

ME04/1	**Remove rubbish**

Ensure site is kept free from litter.

ME30/1	**Control erosion**

Ensure any activities undertaken on site do not cause any further erosion. Supervise any third party activities.

ME32/1	**Control extraction**

Ensure unconsented extraction does not take place on the site.

ME40/1	**MOW PATHS**

Paths and edges of paths should be mown annually.

MH0+/1	**Manage woodland and scrub**

Trees and shrubs should be cut to ground level and stumps left in situ and treated with herbicide.

MH12/1	**Mowing grassland mosaic**

Mowing of different sections to create a mosaic of grassland habitats, with a mowing frequency suitable to ensure scrub does not establish. Cutting should occur in late summer to ensure the flowering and seeding of wild flowers within the grassland

MH14/1	**Scrub control**

Scrub present in geologically non-sensitive areas should be rotational cut, following the outline map produced by Lorraine Smith in 2010.

MH6+/1	**MAINTAIN & ENHANCE WINTER WET POND**

Maintain and enhance winter wet pond. [subject to securing HLF project funding]

MI00/1	UPDATE WEB-SITE INFORMATION

Ensure suitable and appropriate information is available to members of the public and visitors to the site.

MI20/1	UPDATE EDUCTION PACK

Design and trial an education pack for local schools, linked to the national curriculum.

Undertake an oral history project focused on the industrial heritage of the area.

MI50/1	NNR SIGNS

Erect and maintain entrance headboards, interpretation panels and waymark signs. Record when signs were installed/replaced and any significant maintenance.

MI50/2	RESERVE PUBLICATIONS

Where appropriate, provide reserve leaflets/information booklet. Record publication type, publication date and print run. Revise/reprint as appropriate.

MI60/1	NNR EVENTS

Organise and deliver a programme of events eg guided walks looking at the biodiversity, industrial, archaeological and geological interest of the site.

Organise specific youth-focused events.

ML50/1	Liaise, local community/groups

Support and encourage the Friends of Swanscombe Group and other volunteer groups at the site.

RC0+/1	Archaeological, survey

Project has been replaced by RH01/1.

RH01/1	INVESTIGATE CONDITION OF ARCHAEOLOGICAL RESOURCE

Investigate the condition of the archaeological resource. Survey to identify sensitive areas, which will then be covered with an appropriate protective layer to prevent further deterioration.

RH34/1	VISITOR NUMBERS

Record annual numbers of visitors to the NNR.

RP22/2	MAP SURFACE DISTRIBUTION OF SEDIMENTS

Map the surface distribution of sediments. Survey to identify sensitive areas, which will then be covered with an appropriate protective layer to prevent further deterioration.

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